# This electronic collection of documents is provided for the convenience of the user and is Not a Certified Document –

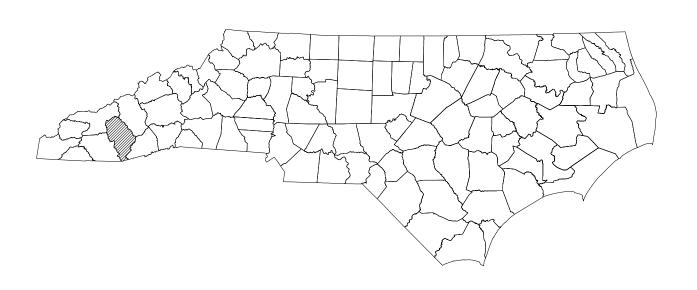
The documents contained herein were originally issued and sealed by the individuals whose names and license numbers appear on each page, on the dates appearing with their signature on that page.

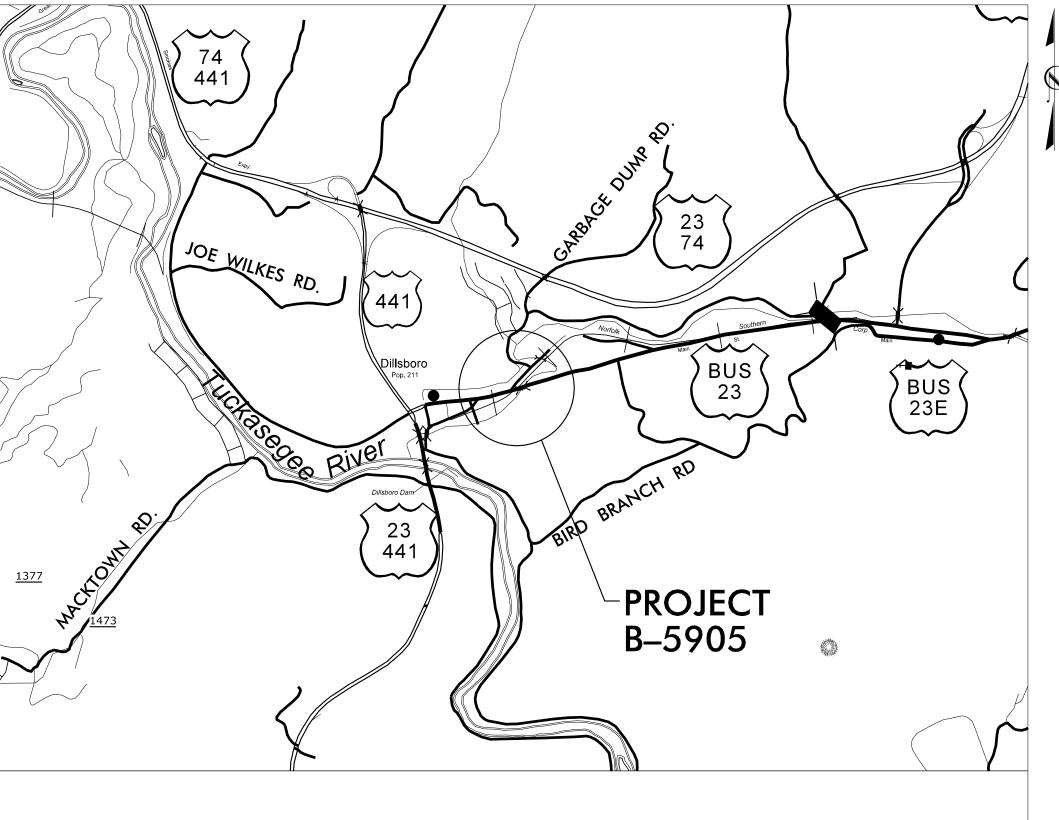
This file or an individual page shall not be considered a certified document.

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

# TRANSPORTATION MANAGEMENT PLAN

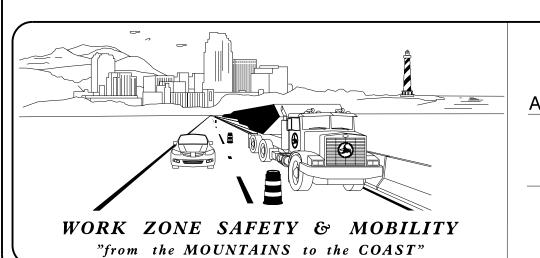
# JACKSON COUNTY





# VICINITY MAP

LOCATION: BRIDGE 27 OVER SCOTT CREEK AND SOUTHERN RAILROAD ON US 23 BUSINESS. BRIDGE REPLACEMENT



PLANS PREPARED BY:

A. Matthew Thigpen, PE

PROJECT ENGINEER

Don Parker, PE

PROJECT ENGINEER

NCDOT CONTACTS:

Roger Garrett

PROJECT DESIGN ENGINEER



## INDEX OF SHEETS

SHEET NO. TITLE TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS TMP - 1 LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND TMP-1A TRANSPORTATION OPERATIONS PLAN: (GENERAL NOTES) TMP-1B-1C PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING TMP-2 LOCATIONS TMP-2A TEMPORARY SHORING DATA TMP-2B OFF-SITE DETOUR TMP-2C SIGN DESIGN TMP-3-3A TEMPORARY TRAFFIC CONTROL PHASING TMP-4-5 TEMPORARY TRAFFIC CONTROL PHASE I DETAIL TMP-6-7 TEMPORARY TRAFFIC CONTROL PHASE II DETAIL TEMPORARY TRAFFIC CONTROL PHASE III DETAIL TMP-8-9

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



APPROVED:

Matthew Thispen

FD15553E9193410...

DATE:

SEAL

SEAL

034343

SHEET NO. **TMP-1** 

5005

M

PROJECT:

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" -N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

#### TITLE STD. NO.

1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGERS
1160.01	TEMPORARY CRASH CUSHION
1165.01	TRUCK MOUNTED ATTENUATOR
1170.01	PORTABLE CONCRETE BARRIER
1180.01	SKINNY-DRUMS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION

PROJ. REFERENCE NO.	SHEET NO.
B-5905	TMP-1A

## **LEGEND**

#### **GENERAL**

DIRECTION OF TRAFFIC FLOW

DIRECTION OF PEDESTRIAN TRAFFIC FLOW

----- EXIST. PVMT.

─────── NORTH ARROW

PROPOSED PVMT.

TEMP. SHORING (LOCATION PURPOSES ONLY)

WORK AREA

REMOVAL

#### SIGNALS

#### PAVEMENT MARKINGS

——EXISTING LINES ——TEMPORARY LINES

#### TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)

DRUM SKINNY DRUM O TUBULAR MARKER

TEMPORARY CRASH CUSHION

FLASHING ARROW BOARD

LAW ENFORCEMENT

FLAGGER

TRUCK MOUNTED ATTENUATOR (TMA)

CHANGEABLE MESSAGE SIGN

#### TEMPORARY SIGNING

PORTABLE SIGN

── STATIONARY SIGN

STATIONARY OR PORTABLE SIGN

## PAVEMENT MARKERS

CRYSTAL/CRYSTAL

CRYSTAL/RED

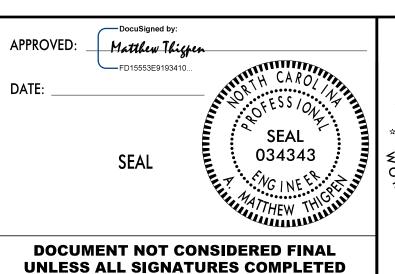
YELLOW/YELLOW

#### PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

## TEMPORARY PAVEMENT MARKING

(P2) WHITE STOPBAR PAINT (24") (P8) 2 FT.-6 FT./SP WHITE MINISKIP PAINT (4'')(PA) WHITE EDGELINE PAINT (4") (PI) YELLOW DOUBLE CENTER PAINT (4'')





ROADWAY STANDARD DRAWINGS & LEGEND

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME

DAY AND TIME RESTRICTIONS

US 23 BUS

12:00 A.M. FRIDAY TO 12:00 A.M. MONDAY

AND

MONDAY THRU THURSDAY 6:00 A.M. TO 8:00 A.M.

AND

3:00 P.M. TO 6:00 P.M.

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME

US 23 BUS

#### HOLIDAY

- 1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
- 2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M.
  DECEMBER 31st TO 6:00 P.M. JANUARY 2ND. IF NEW
  YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR
  MONDAY THEN UNTIL 6:00 P.M. THE FOLLOWING TUESDAY.
- 3. FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 6:00 P.M. MONDAY.
- 4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 6:00 P.M. TUESDAY.
- 5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 6:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 6:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

- 6. FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 6:00 P.M. TUESDAY.
- 7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY AND 6:00 P.M. MONDAY.
- 8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 6:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

PROJ. REFERENCE NO.	SHEET NO.
B-5905	TMP-1B

LANE AND SHOULDER CLOSURE REQUIREMENTS

- C) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- G) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.
- H) DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON US 23 BUS.
- I) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING.

#### PAVEMENT EDGE DROP OFF REQUIREMENTS

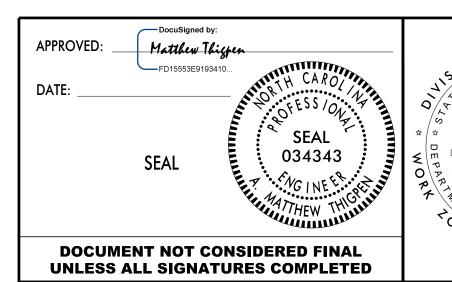
J) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

K) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES.
INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 500 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.



TRANSPORTATION OPERATIONS
PLAN: (GENERAL NOTES)

# GENERAL NOTES CONTINUED

#### TRAFFIC PATTERN ALTERATIONS

L) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

#### SIGNING

- M) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- N) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

ΔND

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

- O) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- P) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 500 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

#### TRAFFIC BARRIER

Q) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE A RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

R) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

POSTED SPEED LIMIT	MINIMUM	OFF	SET
40 OR LESS		15	FT
45 - 50		20	FT
55		25	FT
60 MPH or HIGHER		30	FT

OJ. REFERENCE NO.	SHEET NO.
B-5905	TMP-1C

#### TRAFFIC CONTROL DEVICES

- S) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- T) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.
- U) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES (DRUMS)
  PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN
  UNOPENED LANES ARE CLOSED TO TRAFFIC.

#### PAVEMENT MARKINGS AND MARKERS

V) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
US 23 BUS, SR 1381	PAINT	TEMPORARY RAISED
CONCRETE BRIDGES	PAINT	TEMPORARY RAISED

- W) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- X) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

#### MISCELLANEOUS

Y) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.

# LOCAL NOTES

LN-1 PARTIALLY CONSTRUCT DRAINAGE BOX FOR PROPOSED D.I. OR C.B. TO AN INTERIM ELEVATION BELOW GRADE, COVER WITH TEMPORARY TRAFFIC BEARING COVER. BACKFILL AND PATCH PAVEMENT.





TRANSPORTATION OPERATIONS PLAN: (GENERAL NOTES)

# FIGURE A

## **NOTES**

- 1- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.
- 2- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).
- 3- PCB IS REQUIRED IF TEMPORARY SHORING IS LOCATED WITHIN THE CLEAR ZONE IN ACCORDANCE WITH THE AASHTO ROADSIDE DESIGN GUIDE. DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

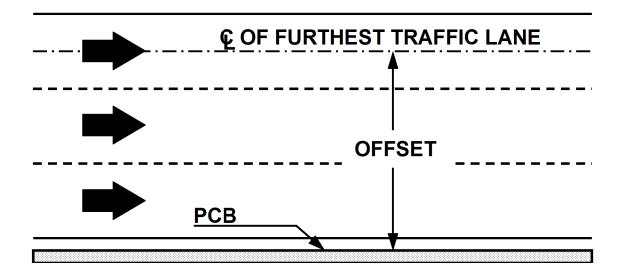
  (CONTACT NCDOT PAVEMENT MANAGEMENT UNIT FOR APPLICABLE PAVEMENT DESIGN).
- 4- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED OR ANCHORED PCB FROM THE TABLE SHOWN IN FIGURE B. CLEAR DISTANCE IS DEFINED AS SHOWN IN FIGURE A AND OFFSET IS DEFINED AS SHOWN IN FIGURE B.
- 5- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET PCB NEXT TO AND UP AGAINST THE TRAFFIC SIDE OF THE TEMPORARY SHORING EXCEPT FOR BARRIER ABOVE TEMPORARY WALLS. PCB WITH THE MINIMUM REQUIRED CLEAR DISTANCE IS REQUIRED ABOVE TEMPORARY WALLS.
- 6- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.
- 7- PCB REQUIREMENTS FOR TEMPORARY WALLS APPLY TO TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS AND TEMPORARY SOIL NAIL WALLS.
- 8- SET PCB WITH A MINIMUM HORIZONTAL DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A UNLESS OTHERWISE SHOWN IN THE PLANS AND OR AS APPROVED BY THE ENGINEER.
- 9- FOR PCB ABOVE AND BEHIND TEMPORARY WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THESE MINIMUM REQUIRED DISTANCES ARE NOT AVAILABLE, CONTACT THE ENGINEER.
- 10- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS. BARRIER DEFLECTIONS AND RESULTING MINIMUM REQUIRED CLEAR DISTANCES MIGHT VARY SIGNIFICANTLY FOR LARGER HEAVIER VEHICLES, RUNS OF BARRIER LESS THAN 200 FT IN LENGTH AND WET OR DRY PAVEMENT.

PROJ. REFERENCE NO.	SHEET NO.
B-5905	TMP-2

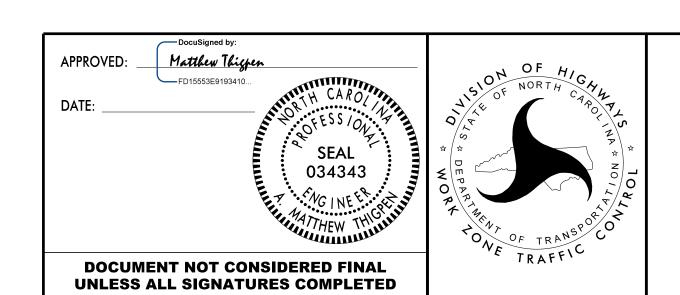
#### MINIMUM REQUIRED CLEAR DISTANCE, inches

Barrier	Pavement	Offset *		De	sign Spe	ed, mph		
Type	Type	ft	<30	31-40	41-50	51-60	61-70	71-80
		<8	24	26	29	32	36	40
		8-14	26	28	31	35	38	42
		14-20	27	29	34	36	39	43
		20-26	28	31	35	38	40	44
	Asphalt	26-32	29	32	36	39	42	45
		32-38	30	34	38	41	43	46
<b>8</b>		38-44	31	34	41	43	45	48
PCB		44-50	31	35	41	43	46	49
7		50-56	32	36	42	44	47	50
re		>56	32	36	42	45	47	51
Unanchored		<8	17	18	21	22	25	26
nc		8-14	19	20	23	25	26	29
n a		14-20	22	22	24	26	28	31
)		20-26	23	24	26	27	30	34
	Concrete	26-32	24	25	27	28	32	35
		32-38	24	26	27	30	33	36
		38-44	25	26	28	30	34	37
		44-50	26	26	28	32	35	37
		50-56	26	26	28	32	35	38
		>56	26	27	29	32	36	38
Anchored PCB	Asphalt	All Offsets	24 for All Design Speeds					
Anchored PCB	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds					

<sup>\*</sup> See Figure Below



# FIGURE B



PORTABLE CONCRETE
BARRIER
AT
TEMPORARY SHORING
LOCATIONS

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DEISGN TEMPORARY SHORING FROM STATION -L- 17+25 +/-, 31' RT, TO STATION -L- 17+79 +/-, 31' RT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF FRICTION ANGLE (φ) = 30 DEGREES COHESION (c) = 0 PSF GROUNDWATER ELEVATION = 1971 FT

AT THE CONTRACTOR'S OPTION, USE STANDARD SHORING FOR TEMPORARY SHORING FROM STATION - L- 24+94 +/-, 16.5' LT, TO STATION -L- 25+35 +/-, 19.2' LT. SEE GEOTECHNICAL STANDARD DETAIL NO. 1801.01 FOR STANDARD TEMPORARY SHORING AND DETAIL NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

SHORING LOCATION NO. 2

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DEISGN TEMPORARY SHORING FROM STATION -L- 17+79.4, 24.9' RT TO STATION -L- 18+41.1, 24.9' RT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF FRICTION ANGLE (φ) = 30 DEGREES COHESION (c) = 0 PSF GROUNDWATER ELEVATION = 1971 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION -L- 17+79.4, 24.9' RT TO STATION -L- 18+41.1, 24.9' RT. THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

AT THE CONTRACTOR'S OPTION, USE A STANDARD TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 17+79.4, 24.9' RT TO STATION -L- 18+41.1, 24.9' RT. SEE GEOTECHNICAL STANDARD DETAIL NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

SHORING LOCATION NO. 3

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DEISGN TEMPORARY SHORING FROM STATION -L- 24+94 +/-, 16.5' LT, TO STATION -L- 25+35 +/-, 19.2' LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF FRICTION ANGLE (φ) = 30 DEGREES COHESION (c) = 0 PSF GROUNDWATER ELEVATION = 1971 FT

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION -L- 24+94 +/-, 16.5' LT, TO STATION -L- 25+35 +/-, 19.2' LT. SEE GEOTECHNICAL STANDARD DETAIL NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM STATION -L- 24+94 +/-, 16.5' LT, TO STATION -L- 25+35 +/-, 19.2' LT. FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

PROJ. REFERENCE NO. SHEET NO. B-5905 TMP-2A

#### SHORING LOCATION NO. 4

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

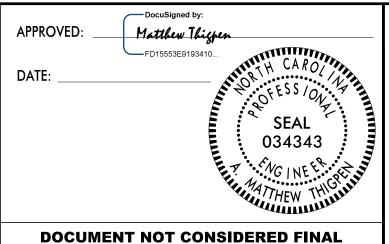
DEISGN TEMPORARY SHORING FROM STATION -LDET- 12+60 +/-, 45' RT TO STATION -LDET- 13+76 +/-, 14.5' RT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF FRICTION ANGLE (φ) = 30 DEGREES COHESION (c) = 0 PSF GROUNDWATER ELEVATION = 1971 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION -LDET- 12+60 +/-, 45' RT TO STATION -LDET- 13+76 +/-, 14.5' RT. THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

AT THE CONTRACTOR'S OPTION, USE A STANDARD TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -LDET- 12+60 +/-, 45' RT TO STATION -LDET- 13+76 +/-, 14.5' RT. SEE GEOTECHNICAL STANDARD DETAIL NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

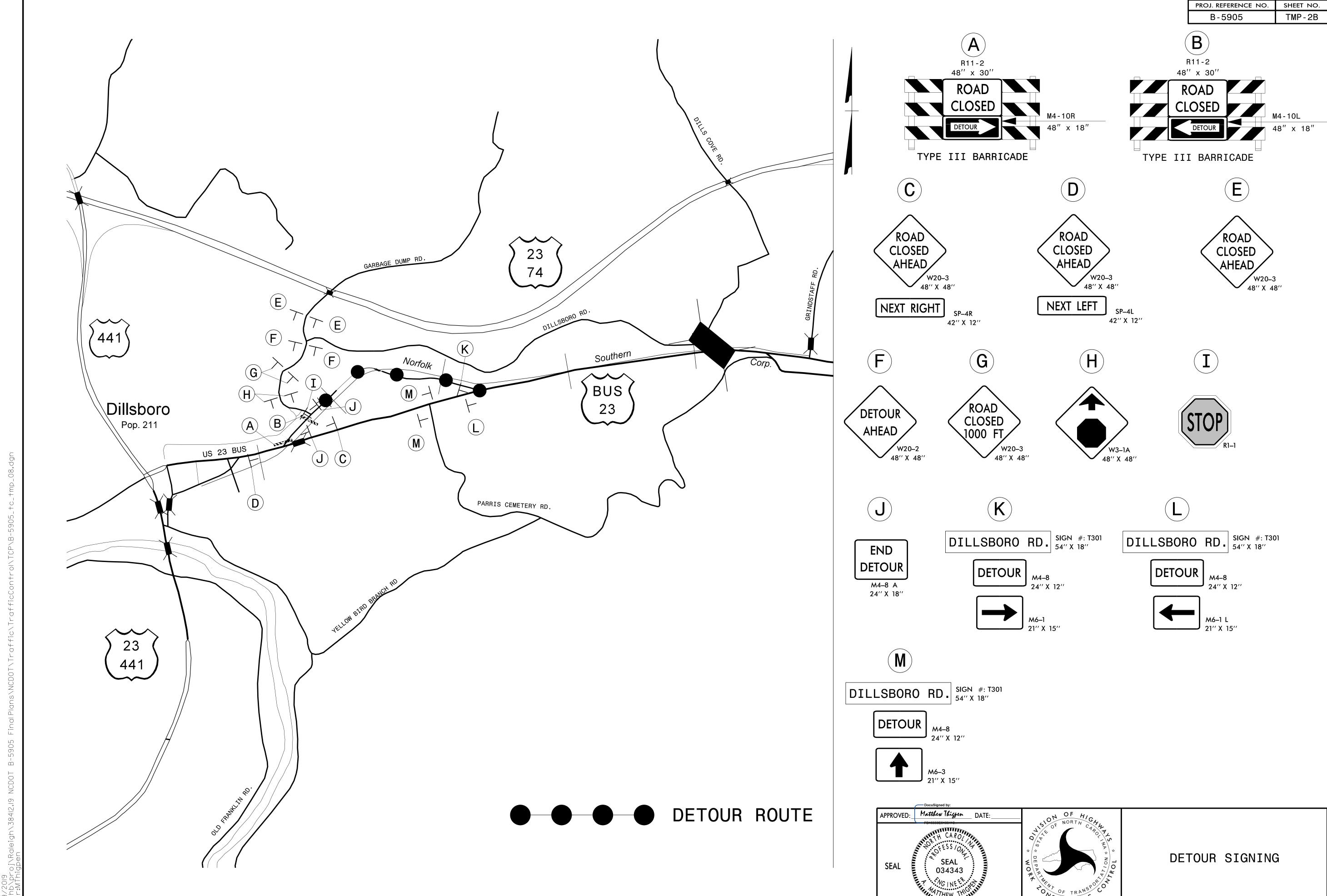
THE TEMPORARY SHORING NOTES SHOWN ON THIS SHEET WERE PROVIDED THROUGH SEALED DOCUMENTS FROM THE GEOTECHNICAL ENGINEERING UNIT. THE DOCUMENTS WERE SUBMITTED TO THE WZTC SECTION ON JANUARY 11, 2019 AND SEALED BY PROFESSIONAL ENGINEER, MICHAEL STEPHENS, P.E., LICENSE # 28893



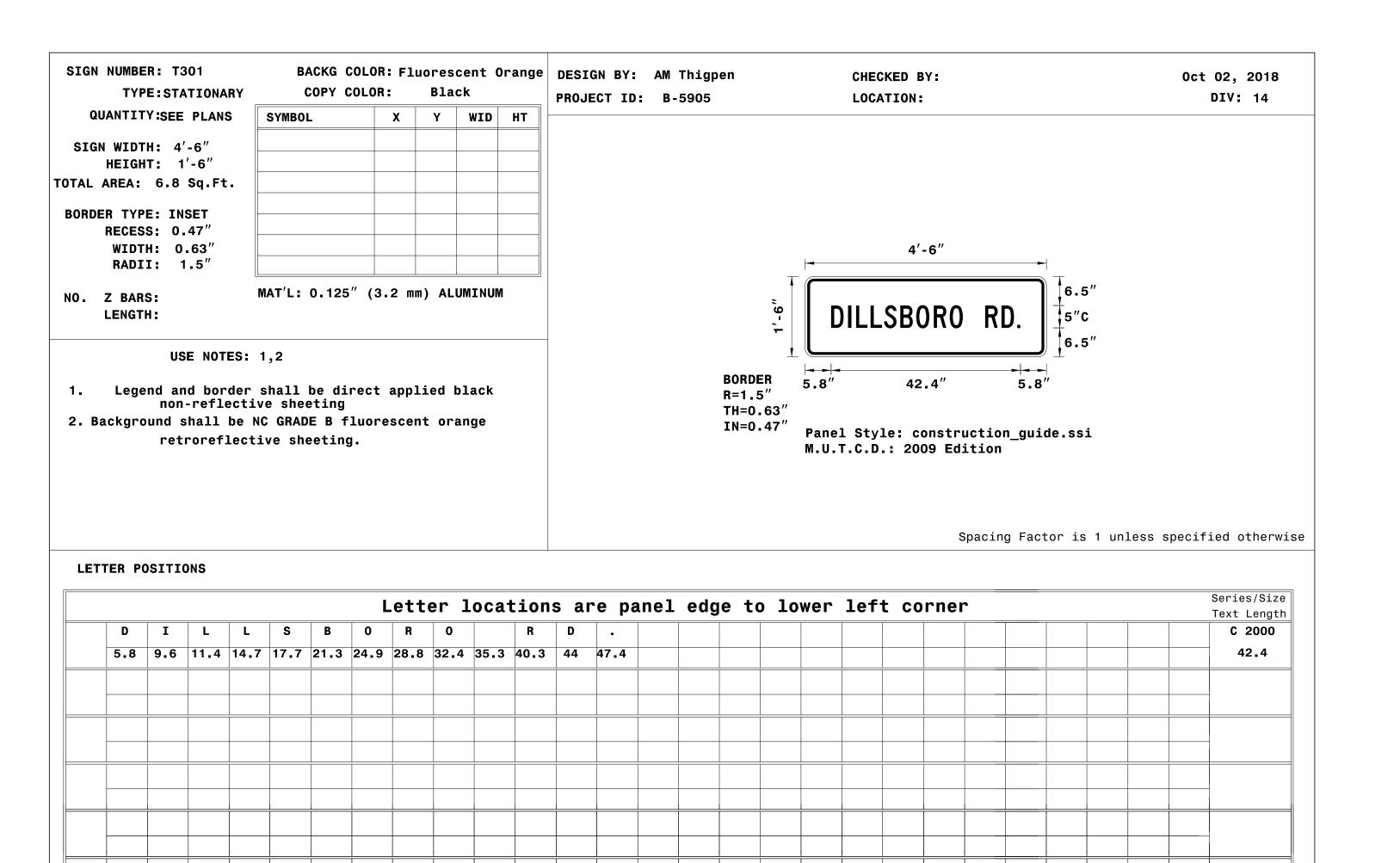
**UNLESS ALL SIGNATURES COMPLETED** 



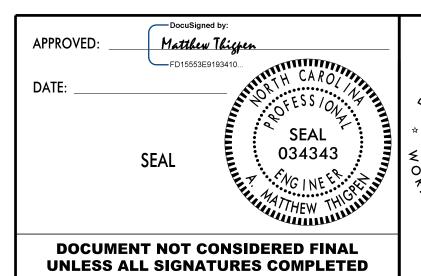
TEMPORARY SHORING NOTES



PROJ. REFERENCE NO.	SHEET NO.
B-5905	TMP-2C



FILENAME: B-5905\_Guidsign\_English



NORTH CAROLINA D.O.T. SIGN DETAIL



SIGN DESIGN

OJ. REFERENCE NO.	SHEET NO.
B-5905	TMP-3

# PHASING

THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING DRIVEWAYS AS DIRECTED BY THE ENGINEER.

#### PHASE I

#### STEP 1

INSTALL WORK ZONE ADVANCE WARNING SIGNS. SEE RSD 1101.01.

#### STEP 2

AWAY FROM TRAFFIC AND USING RSD 1101.02, SHEET 1 OF 14 AND RSD 1101.06 WHEN NEEDED, PERFORM THE FOLLOWING:

- -COMPLETE CONSTRUCTION OF ON-SITE DETOUR CONSTRUCTION OF PROPOSED TEMPORARY BRIDGE, APPROACHES AND TEMPORARY DRAINAGE FROM -LDET- STA 10+00 +/- TO STA 21+96 +/- AND TEMPORARY RETAINING WALL FROM -LDET- STA 12+60 +/- TO STA 13+76 +/- (SEE TMP-04 AND TMP-05).
- -BEGIN CONSTRUCTION OF PERMANENT DRAINAGE SYSTEM ON WEST SIDE OF EXISTING BRIDGE. SEE LOCAL NOTE LN-1 FOR INSTALLATION OF CATCH BASIN WITHIN DETOUR ALIGNMENT (SEE TMP-04 AND TMP-05).
- -COMPLETE CONSTRUCTION OF OFF-SITE DETOUR CONSTRUCTION INCLUDING PROPOSED TEMPORARY BRIDGE AND APPROACHES FROM -Y3DET- STA 11+30 +/- TO STA 23+68 +/- (SEE TMP-04 AND TMP-05).
- -COMPLETE CONSTRUCTION OF RETAINING WALL1B TIE-BACKS FROM -L- STA 17+79 +/- TO STA 18+41 +/-.

#### STEP 3

PLACE TEMPORARY PHASE II PAVEMENT MARKINGS/MARKERS AS MUCH AS POSSIBLE WITHOUT INTERFERING WITH THE EXISTING TRAFFIC PATTERN.

#### STEP 4

USING RSD 1101.03 CLOSE -Y- (SR 1381). DETOUR TRAFFIC ALONG ROUTE SHOWN ON TMP-02B. COVER CONFLICTING SIGNS PRIOR TO USING ROUTE.

#### STEP 5

WORKING IN A CONTINUOUS MANNER TO COMPLETE IN A SINGLE WORK PERIOD, SHIFT BUS. US 23 AND SR 1381 TRAFFIC IN THE FOLLOWING SEQUENCE:

- A) USING FLAGGERS, PLACE ALL BUS. US 23 TRAFFIC IN A 1L, 2W PATTERN IN THE EXISTING WB LANE ON BUS. US 23.
- B) WITH ALL BUS. US 23 TRAFFIC IN THE EXISTING WB LANE, TIE IN THE PROPOSED EB LANE OF -LDET- AND INSTALL A DOUBLE YELLOW CENTERLINE.
- C) HAVE FLAGGERS DIRECT TRAFFIC TO NEWLY CONSTRUCTED -LDET- IN A 1L, 2W PATTERN IN THE PROPOSED EB LANE.
- D) WITH ALL TRAFFIC IN THE EB LANE OF -LDET-, TIE IN PROPOSED WB LANE OF THE NEW ROAD, TIE IN THE DOUBLE YELLOW CENTERLINE AND INSTALL PORTABLE CONCRETE BARRIER WITH TEMPORARY CRASH CUSHIONS AS SHOWN ON SHEETS TMP-6 AND TMP-7.
- E) ENSURE ALL TRAFFIC CONTROL DEVICES ON BUS. US 23 ARE CORRECT AND OPEN LANES TO 2L, 2W TRAFFIC PATTERN.

#### PHASE II

#### STEP 1

AWAY FROM TRAFFIC AND USING RSD 1101.02, SHEET 1 OF 14 WHEN NEEDED, PERFORM THE FOLLOWING:

-BEGIN CONSTRUCTION OF PROPOSED PERMANENT BRIDGE AND APPROACHES FROM -L- STA 13+55 +/- TO STA 26+00 +/- (SEE TMP-06 AND TMP-07).

#### PHASE II CONT.

- -COMPLETE CONSTRUCTION OF -Y- (SR 1381) UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE (SEE TMP-06).
- -COMPLETE CONSTRUCTION OF RETAINING WALL1A AND WALL1B FROM -L- STA 17+25 +/- TO STA 18+41 +/- AND BEGIN CONSTRUCTION OF RETAINING WALL2 FROM -L- STA 22+97 +/- TO STA 25+35 +/- (SEE TMP-06 AND TMP-07).
- -BEGIN CONSTRUCTION OF PERMANENT DRAINAGE SYSTEM ON EAST SIDE OF PROPOSED -L- BRIDGE. TIE PROPOSED PIPE BETWEEN DRAINAGE STRUCTURE NUMBERS 408 AND 409 TO TEMPORARY DRAINAGE PIPE BETWEEN -L- AND -LDET-. DRAINAGE FROM AND INCLUDING STRUCTURE NUMBER 409 AND 419 WILL NOT BE CONSTRUCTED UNTIL AFTER TRAFFIC IS SHIFTED TO FINAL ALIGNMENT.

#### STEP 2

USING RSD 1101.02, SHEET 1 OF 14, REMOVE PORTABLE CONCRETE BARRIER AND TEMPORARY CRASH CUSHION FROM -LDET- STA 12+29 +/- TO -LDET- STA 13+73 +/-.

PLACE TEMPORARY PHASE III PAVEMENT MARKINGS/MARKERS AS MUCH AS POSSIBLE WITHOUT INTERFERING WITH THE EXISTING TRAFFIC PATTERN.

#### STEP 3

COMPLETE CONSTRUCTION OF TEMPORARY SIGNAL, REMOVE ALL ROAD CLOSURE AND DETOUR SIGNING FOR -Y- (SR 1381), REMOVE ALL ROAD CLOSURE BARRICADES AND OPEN ALL LANES OF -Y- (SR 1381) TO THE PHASE III TRAFFIC PATTERN.

USING RSD 1101.02, SHEET 1 OF 14, THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, PERFORM THE WORK OF PHASE IV STEP 1 (DEMOLITION OF TEMPORARY BRIDGE ON -Y3DET- SR 1381) AFTER COMPLETION OF PHASE II.

#### PHASE III

#### STEP 1

AWAY FROM TRAFFIC AND USING RSD 1101.02, SHEET 1 OF 14 WHEN NEEDED, COMPLETE CONSTRUCTION OF PROPOSED PERMANENT BRIDGE AND APPROACHES, UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE. COMPLETE CONSTRUCTION OF PERMANENT DRAINAGE SYSTEM ON WEST SIDE OF PROPOSED BRIDGE (CATCH BASIN INSIDE DETOUR ALIGNMENT TO BE COMPLETE AFTER TRAFFIC SHIFTED TO FINAL ALIGNMENT) (SEE TMP-08 AND TMP-09).

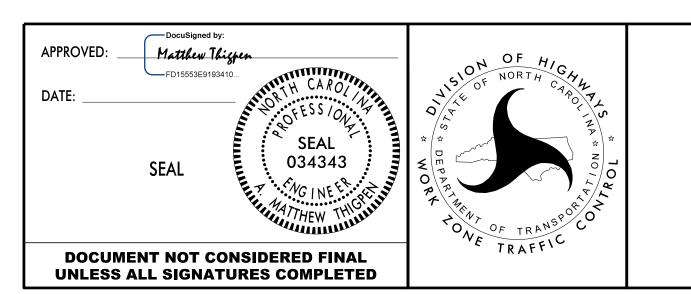
COMPLETE CONSTRUCTION OF RETAINING WALL2 FROM -L- STA 22+97 +/- TO STA 25+35 +/- (SEE TMP-08 AND TMP-09).

BEGIN CONSTRUCTION OF FINAL SIGNAL

#### STEP 2

USING RSD 1101.02, SHEET 1 OF 14, REMOVE PORTABLE CONCRETE BARRIER AND TEMPORARY CRASH CUSHION FROM -LDET- STA 20+40 +/- TO -LDET- STA 26+36 +/-.

PLACE PAVEMENT MARKINGS/MARKERS IN FINAL PATTERN AS MUCH AS POSSIBLE WITHOUT INTERFERING WITH THE EXISTING TRAFFIC PATTERN.



PHASING

#### PHASE III CONT.

#### STEP 3

WORKING IN A CONTINUOUS MANNER TO COMPLETE IN A SINGLE WORK PERIOD, SHIFT BUS. US 23 AND SR 1381 TRAFFIC IN THE FOLLOWING SEQUENCE:

- A) USING FLAGGERS, PLACE ALL TRAFFIC IN A 1L, 2W PATTERN IN THE EXISTING EB LANE ON BUS. US
- B) WITH ALL BUS. US 23 TRAFFIC IN THE EXISTING EB LANE, TIE IN THE PROPOSED WB LANE OF THE NEW ROAD AND INSTALL A DOUBLE YELLOW CENTERLINE.
- C) HAVE FLAGGERS DIRECT TRAFFIC TO NEWLY CONSTRUCTED -L- IN A 1L, 2W PATTERN IN THE PROPOSED WB LANE.
- D) WITH ALL TRAFFIC IN THE WB LANE OF -L-, TIE IN PROPOSED EB LANE OF THE NEW ROAD AND TIE IN THE DOUBLE YELLOW CENTERLINE.
- E) ENSURE ALL TRAFFIC CONTROL DEVICES ON BUS. US 23 AND SR 1381 ARE CORRECT, COMPLETE CONSTRUCTION AND ACTIVATE FINAL SIGNAL AND OPEN LANES TO 2L, 2W TRAFFIC PATTERN.

#### PHASE IV

#### STEP 1

USING RSD 1101.02, SHEET 1 OF 14 AS NECESSARY, PERFORM THE FOLLOWING:

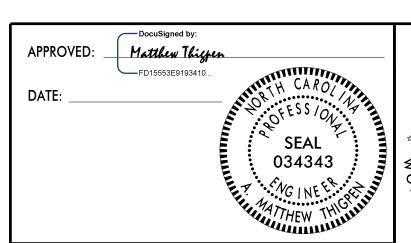
- -DEMO TEMPORARY BRIDGES AND APPROACHES
- -COMPLETE ANY REMAINING CONCRETE WALLS
- -COMPLETE PERMANENT DRAINAGE CONSTRUCTION AND REMOVAL OF TEMPORARY DRAINAGE
- -COMPLETE ALL REMAINING CONSTRUCTION
- -PLACE FINAL LAYER OF SURFACE COURSE

#### STEP 3

USING RSD 1101.02, SHEET 1 OF 14, PLACE FINAL PAVEMENT MARKINGS AND MARKERS (SEE PAVEMENT MARKING PLANS).

#### STEP 4

REMOVE ALL REMAINING TRAFFIC CONTROL DEVICES.



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PHASING

